

# AIDS

## MEMORANDUM

Acquired Immune Deficiency Syndrome

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### GROUND RULES FOR USE OF THE AIDS MEMORANDUM

The AIDS Memorandum serves as a forum for the rapid exchange of new information and ideas among clinicians and scientists involved in AIDS research and management. Material contained in the Memorandum can be of several kinds: positive and/or negative results, clinical and/or experimental findings, preliminary and/or validated data, observations, questions, theories, commentaries, and others. This material is not subjected to peer review. Therefore, users of the Memorandum must agree to treat all material as privileged information and to consider it as tentative and subject to change prior to formal publication in a refereed journal.

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**A METHOD FOR INACTIVATING LIPID-CONTAINING VIRUSES IN PLASMA PRODUCTS WITHOUT LOSING THE BIOLOGICAL ACTIVITY OF THE PRODUCT**

Commercial plasma products such as factor VIII and factor IX have proven effective and practical for treating life-threatening clotting deficiencies. These products have, however, continued to be sources of infectious hepatitis viruses and, more recently, have been implicated in the transmission of the AIDS virus. Infections with these viruses following infusion of plasma products are not rare: over 60% of hemophiliacs have evidence of infection with hepatitis B virus, non-A, non-B hepatitis agents, and LAV/HTLV-III (the retrovirus that is the putative etiologic agent of AIDS). Probably all commercial lots of clotting factors are contaminated with one or more of these viruses. Even when a serologic screening test for the virus is available (as in the case of the hepatitis B virus), the infectious agent has not been eliminated from commercial lots. The inherent limitations of serologic tests, human error, and the ability of a single virus-positive unit to contaminate a very large pool of plasma such as that employed for fractionation of plasma derivatives may all contribute to this sustained contamination.

Numerous attempts to inactivate viruses contaminating plasma products have met with little success. The failure of the various inactivation procedures attempted has stemmed from the relative resistance of the agents to physical or chemical inactivation and the relative lability of the plasma products to the same inactivation procedures. Procedures used to stabilize the biological potency of the plasma products have produced concomitant stabilizations of the contaminating viruses.

One characteristic shared by blood-borne hepatitis viruses and retroviruses is the presence of essential lipids in the virions. Removal or disruption of the lipids inactivates both types of viruses. Both organic lipid solvents and detergents have been used successfully to inactivate lipid-containing viruses; different members of each of these classes of chemicals vary greatly in the efficiency with which they remove or disrupt lipids. Previous studies showed that diethyl ether could inactivate virtually all lipid-containing viruses except the pox viruses which proved to be highly resistant (only approximately one  $\log_{10}$  of virus was inactivated). Chloroform was subsequently found to be a more efficient lipid solvent: with chloroform, over two  $\log_{10}$  of vaccinia virus infectivity could be destroyed consistently. Poxviruses, especially vaccinia viruses, are, therefore, the most suitable agents for use in tests of virus inactivation by lipid solvents.

Tests of the lipid solvent sensitivity of viruses are usually performed in a two-phase water-solvent system; this system also denatures labile proteins. Similarly, certain detergents denature some proteins: those which are relatively ineffective in removing lipids are also the least effective in denaturing proteins, and those which are the most effective in removing lipids are most effective in protein denaturation.

Experiments were designed to develop virus inactivation procedures for labile proteins using chloroform. A model lipid-containing virus (vaccinia) was added to commercial factor VIII. The contaminated factor VIII was lyophilized and extracted in the dry state with chloroform. In preliminary studies, significant inactivation of vaccinia virus was achieved with essentially 100%

recovery of biological potency of the product. Subsequent experiments yielded erratic results including incomplete inactivation of the vaccinia virus.

We suspected that residual moisture content of the chloroform and/or the plasma product might play a role in the efficient inactivation of lipid-containing viruses in lyophilized plasma products. Therefore, an additional set of experiments was carried out to determine the ability of increasing concentrations of water in chloroform to potentiate inactivation of vaccinia virus. As shown in Table 1, 100% saturation of chloroform with water yielded significant inactivation of lyophilized vaccinia virus, while full biological potency of lyophilized factor VIII was retained. Chloroform completely saturated with H<sub>2</sub>O existed as a single-phase liquid that could be manipulated conveniently and removed from the lyophilized product by evaporation. In contrast to these results, two-phase chloroform-water extraction resulted in complete inactivation of vaccinia virus but also significant loss of factor VIII activity, probably through denaturation of labile proteins at the chloroform-water interface (Table 1).

Since the solubility of water in chloroform can be increased by adding ethanol or by increasing the temperature, the effects of variations in these parameters on virus inactivation and retention of biological potency respectively were examined (Table 2). The saturation of chloroform with water at elevated temperature (37°C) or after the addition of 2% or 5% ethanol yielded a reagent at least as effective in inactivating virus while protecting biological potency of the product as was chloroform saturated with water under standard conditions. However, small differences in virus inactivation could not be evaluated in this experiment, since water-saturated chloroform, not further modified, completely inactivated the vaccinia virus at room temperature.

Although in our studies significant losses of biological potency were observed when two-phase chloroform-water systems were used for the extraction procedures, other studies have shown that more highly purified factor VIII preparations can be treated in this way with only minimal loss of biological potency. The ease with which a single-phase organic solvent system can be

TABLE 1

Treatment*	Vaccinia Titer (TCID <sub>50</sub> )†	Factor VIII Level (% of Control)
100% H <sub>2</sub> O saturated CHCl <sub>3</sub>	10 <sup>2.25</sup>	105
75% H <sub>2</sub> O saturated CHCl <sub>3</sub>	10 <sup>4.75</sup>	100
50% H <sub>2</sub> O saturated CHCl <sub>3</sub>	10 <sup>4.25</sup>	100
25% H <sub>2</sub> O saturated CHCl <sub>3</sub>	10 <sup>4.75</sup>	110
Dry fresh CHCl <sub>3</sub>	10 <sup>4</sup>	110
H <sub>2</sub> O + CHCl <sub>3</sub> (2 phase)	0	14
H <sub>2</sub> O only	10 <sup>4.5</sup>	100

\* Extraction with shaking at 20°C for 4 hours. CHCl<sub>3</sub> removed by evaporation (single-phase) or centrifugation (two-phase).

† TCID = 50% Tissue culture infective dose.



TABLE 2

Treatment*	Temp.	Vaccinia Titer (TCID <sub>50</sub> )	Factor VIII Level (% of Control)
Dry CHCl <sub>3</sub>	20°C	10 <sup>5</sup>	75
H <sub>2</sub> O saturated CHCl <sub>3</sub>	20°C	0	94
Dry CHCl <sub>3</sub>	37°C	10 <sup>4.75</sup>	119
H <sub>2</sub> O saturated CHCl <sub>3</sub>	37°C	0	75
Dry CHCl <sub>3</sub> -2% ethanol	20°C	10 <sup>5</sup>	100
H <sub>2</sub> O saturated CHCl <sub>3</sub> - 2% ethanol	20°C	0	100
Dry CHCl <sub>3</sub> -5% ethanol	20°C	10 <sup>4.75</sup>	119
H <sub>2</sub> O saturated CHCl <sub>3</sub> - 5% ethanol	20°C	0	96
CHCl <sub>3</sub> + H <sub>2</sub> O (2-phase)	20°C	0	0.3
CHCl <sub>3</sub> + H <sub>2</sub> O (2-phase)	37°C	0	0.3
H <sub>2</sub> O only (control)	20°C	10 <sup>5.5</sup>	100
H <sub>2</sub> O only	37°C	10 <sup>5.5</sup>	15

\* Extraction and removal of solvent as in Table 1.

manipulated and the negligible effect of this system on biological potency would seem to make such a system the method of choice for inactivation of lipid-containing viruses in labile biological products.

Certain lipid solvents can efficiently inactivate lipid-containing viruses without altering the biological potency of labile proteins, thus providing a differential inactivating effect. Other chemicals--such as formaldehyde and beta-propiolactone--or physical agents--such as heat--produce parallel inactivation of viruses and blood products. The plasma derivatives of therapeutic interest generally do not contain essential lipids. Some undesirable biological substances, such as certain endotoxins, probably are inactivated by extraction with lipid solvents under these conditions.

Since the poxviruses are widely recognized as the lipid-containing viruses most resistant to inactivation by extraction with lipid solvents, all other classes of such viruses can be expected to be inactivated efficiently by the procedures described above. Among these viruses are the hepadnaviruses, the hepadnavirus-associated delta agent, herpes viruses, togaviruses, bunyaviruses, retroviruses, orthomyxoviruses, paramyxoviruses, rhabdoviruses, arenaviruses, coronaviruses, and other unclassified lipid-containing viruses such as the non-A, non-B hepatitis viruses.

R. H. Purcell and S. M. Feinstone. Hepatitis Viruses Section, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland 20205.

PORPHYRIA CUTANEA TARDA  
IN AN AIDS PATIENT

A 32-year-old white male was successfully treated for *Pneumocystis carinii* pneumonia in April, 1984, with a 28-day course of oral trimethoprim/sulfamethoxazole. Five weeks after the completion of all antibiotic therapy, the patient began to develop painless, bullous lesions on the dorsa of his arms, hands, and chest. The lesions ranged in size up to 1-1.5 cm. Lesions did not appear in "crops" but formed constantly. These lesions subsequently healed, leaving hypopigmented areas on the skin.

Biopsy of one lesion indicated that the lesion contained no giant cells, Tzanck cells, or viral inclusion bodies. The pathology was interpreted as non-diagnostic. No organisms were cultured from the lesion.

At this time, the patient's clinical course was marked by fevers rising occasionally to 102°F, oral candidiasis, herpes simplex infection in the perianal area, and herpes zoster infection in the right thoracic dermatomes (6th-8th). Laboratory data did not change from the baseline findings of mild leukocytopenia, anemia, and thrombocytopenia. Liver function tests, normal at diagnosis, gave evidence of inflammation (SGOT = 78 IU/L, GGT = 125 IU/L, LDH = 267 IU/L). Markers of hepatitis B infection remained negative. The cytomegalovirus antibody titer was low and viral cultures were negative. Repeat gallium scans at this time demonstrated no pulmonary uptake; moderate diffuse hepatosplenomegaly was indicated.

Over the next 2 months, new bullous lesions continued to develop and to heal. Liver enzyme elevations continued to increase, with the SGOT level measuring as high as 364 IU/L. A percutaneous

liver biopsy demonstrated minimal increased iron and mild fatty metamorphosis. There were no inflammatory infiltrates and no granulomata. Acid fast and Gomori's methenamine-silver stains were negative.

At this point the patient mentioned that his urine had been turning red. A 24-hour urine collection demonstrated 1642 mcg of coproporphyrins and 6355 mcg of uroporphyrins. The urine fluoresced. A diagnosis of porphyria cutanea tarda (PCT) was made. There was no family history of PCT. There was also no known exposure to hepatotoxins or exogenous estrogens, and the patient's ingestion of alcohol was not significant. The alpha-fetoprotein level was less than 2 ng/ml. The number of new lesions has diminished with restricted exposure to the sun. However, the usual forms of therapy for PCT, such as phlebotomy or hydroxychloroquine, have been judged inappropriate for this patient.

While a number of dermatologic lesions besides Kaposi's sarcoma have been seen in AIDS patients, most have been associated with viral, bacterial, or fungal infections. This case illustrates that not all lesions may be signs of infections in AIDS patients. The etiology of the marked liver function abnormalities in this patient remains to be determined.

G. F. Shipman, Howard Brown Memorial  
Clinic, Chicago, Illinois 60645.

GENERALIZED LYMPHADENOPATHY  
IN HYPERTRANSFUSED PATIENTS  
WITH SICKLE CELL DISEASE

We are caring for two boys, DB and NS, ages 13 and 18, who have sickle cell disease. Both have been receiving hyper-

transfusion therapy consisting of 2 units of packed red blood cells every month as treatment for previous cerebrovascular accidents. Although they appear healthy otherwise, each has developed generalized lymphadenopathy. Neither is Haitian. Neither has a history of homosexual activity or intravenous drug use. Immunological evaluations indicate several abnormalities: increased serum IgG levels, decreased lymphocyte blastogenic response to the mitogen PHA (NS), decreased percentages of T-helper lymphocytes (T4), an increased percentage of T-suppressor lymphocytes (T8) (DB), and decreased T4:T8 ratios. Specific data are presented in the table.

DB has high levels of antibody to HTLV-III. NS has yet to be tested for HTLV-III antibodies. We feel certain that both boys have AIDS-related lymphadenopathy. We have, therefore, studied seven other patients without lymphadenopathy who have sickle cell disease and are being hypertransfused (HT) and seven who do not require hypertransfusion (NHT). Both groups of sickle cell patients (HT and NHT, respectively) had lower percentages of T4 cells ( $32 \pm 4$ ;

$27 \pm 3$ ) and T8 cells ( $22 \pm 5$ ;  $16 \pm 5$ ) when compared with controls. Since T4 and T8 cells were both decreased, the resultant T4:T8 ratios ( $1.63 \pm 0.3$ ;  $1.91 \pm 0.4$ ) were not significantly different from control values. The lymphoproliferative responses to PHA were decreased in the NHT group ( $69,970 \pm 938$ ). Responses in the hypertransfused group, although slightly lower ( $104,595 \pm 12,311$ ) than control values, were not significantly different from controls.

We thus conclude that these two hypertransfused boys with sickle cell disease and lymphadenopathy have unique immunological abnormalities distinct from those found in other patients with sickle cell anemia without lymphadenopathy. We wish to alert others to the possibility that children with sickle cell anemia who require transfusions may be at risk for AIDS-related conditions.

N. P. Waring, J. E. Morgan, C. B. Daul, and R. D. deShazo. Tulane University School of Medicine, Departments of Medicine and Pediatrics, Section of Clinical Immunology and Allergy, New Orleans, Louisiana 70112.

# IMMUNOLOGICAL PARAMETERS IN SICKLE CELL DISEASE PATIENTS

Patient	Age (Yr)	Duration of Hypertransfusion Therapy	Duration of Lymphadenopathy	Serum IgG ng/ml	PHA (cpm) 20 µg/ml	T4 %	T8 %	T4:T8
DB	13	4 yr	17 mo	6180	22,141	24	36	0.67
NS	18	9 yr	7 mo	4060	7,583	19	22	0.86
25 Controls	14-27	None	None	1012 ± 68	111,691 ± 4,780	35 ± 1	23 ± 2	1.76 ± 0.2



A STUDY OF IN VIVO IMMUNOMODULATION  
BY CIMETIDINE IN PATIENTS WITH AIDS  
AND THE AIDS-RELATED COMPLEX

Cimetidine is known to act as a histamine antagonist. It binds specifically to H-2 receptors present on suppressor T cells. The immunomodulatory effects of cimetidine were studied in vivo in seven patients with AIDS and in four patients with AIDS-related complex (ARC). All patients had been stable clinically for at least 4 weeks before the initiation of therapy.

Cimetidine (Smith Kline and French Laboratories, Philadelphia, PA) was administered in doses of 300 mg four times per day for 4 weeks to patients who had given written informed consent. Blood samples were drawn just before treatment began, on the 14th and 28th days of therapy, and 14 days after the completion of therapy. T cells were analyzed phenotypically for OKT4 and OKT8 markers. Lymphocyte proliferative responses to mitogens--phytohemagglutinin (PHA), concanavalin A (con A), and pokeweed mitogen--were quantitated before therapy, on the 28th day of therapy, and 14 days after completion of therapy.

There was no significant association of cimetidine treatment with alterations of OKT4:OKT8 ratios in any subject. Similarly, there were no significant changes or enhancements of lymphocyte proliferative responses to mitogens in any of the patients during or following therapy. In the seven patients with AIDS, the mean lymphocyte proliferative response to PHA was 23,952 ( $\pm 8,759$ ) CPM (counts per minute) on completion of therapy compared to 39,149 ( $\pm 15,304$ ) CPM before therapy. The mean response to con A was 16,939 ( $\pm 6,625$ ) on completion of therapy compared to 14,645 ( $\pm 5,643$ ) CPM prior to therapy. Similarly, the

mean lymphocyte proliferative response to PHA in the four patients with ARC was 61,713 ( $\pm 4,324$ ) CPM at completion compared to 77,076 ( $\pm 32,829$ ) CPM before therapy. The mean con A response was 50,010 ( $\pm 5,232$ ) CPM after therapy compared to 62,562 ( $\pm 36,848$ ) CPM at baseline. In addition, none of the patients in either group provided evidence suggestive of clinical improvement.

This pilot study suggests that the administration of oral cimetidine is not associated with apparent immunologic improvement in patients with AIDS and ARC.

M. H. Grieco, M. M. Reddy, D. Manvar, K. K. Ahuja, M. L. Moriarty, H. A. Holtz, J. Dobro, S. Bellone, E. Johnson, J. W. Kisilek, E. Cohen, and P. C. T. Dickinson. R. A. Cooke Institute of Allergy, St. Luke's-Roosevelt Hospital Center, New York, New York 10019; University of Medicine and Dentistry of New Jersey, University Hospital, Newark, New Jersey 07103; St. Michael's Hospital, Newark, New Jersey 07102; St. Vincent's Hospital Center, New York, New York 10011; Harlem Hospital, New York, New York 10037.

DISSEMINATED VARICELLA-ZOSTER  
COMPLICATED BY COMPLETE HEART  
BLOCK IN A PATIENT WITH AIDS:  
SUCCESSFUL TREATMENT WITH ACYCLOVIR

The very severe suppression of cell-mediated immunity (CMI) associated with AIDS predisposes patients to multiple opportunistic infections. Reactivation of a varicella infection presenting as localized or disseminated herpes zoster (HZV) is not surprising in this setting and has been reported previously (Quinnan GV, Masur H, Rook AH, et al: JAMA, 1984, 252:72-77). This report describes a case of disseminated HZV in an AIDS

patient. A severe myocarditis developed and required the chronic administration of acyclovir for its control.

A 29-year-old hispanic woman with no risk factors for AIDS presented in May, 1984, with Campylobacter enteritis and cryptosporidiosis. In June, 1984, she developed esophageal candidiasis and a severe HZV lesion on her posterior chest wall. Very severe T cell suppression was documented (22 T4 positive cells/ $\mu$ l of blood; normal in our laboratory =  $567 \pm 250/\mu$ l). The diagnosis of AIDS was supported by the finding of anti-HTLV-III antibody in her serum. Mycobacterium avium-intracellulare was cultured from her duodenum and urine. The zoster responded slowly to intravenous acyclovir but cleared by August, 1984. Two weeks after discharge, the patient developed severe herpetic lesions on her buttocks. These coalesced into a necrotic ulcer. Herpetic outbreaks occurred on her face, chest, and extremities. At this time she had a heart rate of 44 and blood pressure of 90/60. She was not orthostatic. An EKG revealed third degree heart block. Her chest x-ray was normal. Intravenous acyclovir was recommended and a temporary pacemaker was inserted. An echocardiogram of the heart and a multigated acquisition scan (MUGA) and a gallium scan were all normal. Her condition was complicated by rapid deterioration in renal function which had previously been normal. Creatinine rose steadily to 4.4 mg/dl, while creatinine clearance fell to 15 ml/min. As much as 14 gm of protein were excreted in the urine per day. After 7 days of treatment, skin lesions had cleared but the heart block persisted. A permanent pacemaker was inserted.

In September, 1984, the patient developed left-sided heart failure. A MUGA demonstrated an enlarged and hypo-

kinetic left ventricle. Intravenous acyclovir was again started and heart failure was controlled with Lasix and digoxin. Since then, two further admissions for severe HZV infection have been necessary. After controlling an exacerbation of zoster with intravenous acyclovir in October, 1984, the patient was discharged on oral acyclovir (400 mg five times per day). The patient has been free of zoster lesions for 3 months. Coincident with the chronic oral administration of acyclovir, left ventricular function improved and became almost normal by November, 1984. The complete heart block persists. Renal function has steadily improved and is now almost normal.

HZV may involve the nervous system, eye, lung, and liver. Myocarditis, though rare, has been reported (Moore CM, Henry J, Benzing G III, et al: Am J Dis Child., 1969, 118:899-902; Morales AR, Adelman S, Fine G: Arch Pathol., 1971, 91:29-31). Clearly, HZV can be a persistent and serious infection for patients with AIDS. We believe that this virus damaged the heart and perhaps the kidneys of the patient described in this report. Because there was no evidence for right ventricular involvement, we did not obtain an endomyocardial biopsy. Left ventricular biopsies are more dangerous, and the lesions in HZV myocarditis are focal (Kereiakes DJ, Palmley WW: Am Heart J., 1984, 108:1318-1326). Nevertheless, the concomitant occurrence of widespread cutaneous zoster with acute deterioration in cardiac function responding to acyclovir strongly suggested that a zoster infection of the heart had developed.

Cytomegalovirus (CMV) and atypical Mycobacterium infections can each produce cardiac disease in patients with AIDS (Guarda LA, Luna MA, Smith J. Jr,



et al: Am J Clin Pathol., 1984, 81:549-557; Cantwell AR Jr: Growth, 1984, 47: 129-134). Neither was a likely cause in this case: no CMV was isolated from urine or saliva and the patient improved on acyclovir at a time when her antimycobacterial therapy had been withdrawn. While our patient's serum contained a high titer of antibody to HTLV-III virus, this agent has not been reported to infect the heart and does not respond to acyclovir.

HSV has been reported to cause tissue damage to host tissue by provoking an immune response. In addition, a direct cytopathic effect of the virus on infected cells has been reported (Kereciak DJ, Palmley WW: Am Heart J., 1984, 108:1318-1326). With immunosuppression as profound as that seen in our patient, the latter effect is far more likely. As in this case, HSV has been reported to have a propensity for conduction rather than contractile tissue (Morales AR, Adelman S, Fine G: Arch Pathol., 1971, 91:29-31).

HSV skin lesions are common when CMI is suppressed in the elderly, in patients with Hodgkin's disease, or in recipients of renal allografts (Wang DT, Peary OL: Med Clin North Am., 1983, 67: 1075-1092). In the latter group, continued immunosuppression can result in persistent infection. With suspension of immunosuppressive treatment, the lesions frequently clear (Gallagher JG, Merigan TC: Ann Intern Med., 1979, 91: 842-846). The depression of CMI in patients with AIDS is currently irreversible; patients must depend on the antiviral properties of acyclovir, a drug which is frequently effective against HSV (Balfour HH Jr, Bean B, Laskin OL, et al: N Engl J Med., 1983, 308:1448-1453). We have administered oral acyclovir chronically to keep this patient

free of HSV lesions, using the approach reported for treatment of chronic herpes simplex infections (Straus SE, Scidlin M, Takiff H, et al: Ann Intern Med., 1984, 100:522-524). When zoster infection occurs in advanced cases of AIDS, it is likely to disseminate dangerously. The long-term administration of oral acyclovir may prove to be valuable in the control of this problem in such patients.

J. M. Melin and J. M. Dwyer. Section of Clinical Immunology, Yale University School of Medicine, New Haven, Connecticut 06510.

#### GUIDELINES FOR CONFIDENTIALITY IN RESEARCH ON AIDS

The identification of AIDS 3 years ago created a crisis of confidence. Persons with AIDS and others who might be research subjects recognized that research was essential for understanding, treating, and preventing this devastating disease. However they also were concerned that information disclosed for research purposes might be used in ways that could be detrimental to their own interests. Unless these individuals can have confidence in the systems designed to protect their privacy and in the people to whom personal information is entrusted, they will face a difficult choice--either to provide inaccurate or incomplete data, thus compromising the validity of the research, or to give accurate and full data, thus placing themselves at risk. The dilemma, then, has become the following: What procedures and policies will both protect the privacy of research subjects and enable research to proceed expeditiously? Now that major research efforts

are being undertaken to tackle the many puzzling aspects of AIDS, this question has become an urgent one.

While in part a technical and administrative problem, the issue has important ethical, legal, and social aspects as well. Ethically, a balance must be struck between the principle of respect for persons (which requires that individuals should be treated as autonomous agents who have the right to control their own destinies) and the pursuit of the common good (which requires maximizing possible benefits and minimizing possible harms to society as well as to individuals). Legally--by statute, policy, and regulation--subjects, researchers, and institutions must be protected from involuntary disclosure of information. Those entrusted with confidential information must be prohibited by law from unjustifiable voluntary disclosure. As a society, we must express our moral commitment to the principle that all persons are due a full measure of compassion and respect.

Any investigation involving a disease which is possibly communicable poses a tension between an individual's desire to control personal information and the desire of others to have access to that information. Although this tension is not unique to AIDS, it is particularly sharply drawn in this case, because those groups that have been identified as at high risk are also highly vulnerable socially, economically, and politically. Because of the unknown factors that are involved in AIDS, researchers may have to explore many intimate aspects of an individual's medical, social, and behavioral history. Further, these data will have to be kept for an extended period. Investigators may seek information that reveals, for example, that a subject has engaged in homosexual

or other sexual practices that are illegal in many states and are subject to social stigma, has injected drugs obtained illegally, has engaged in criminal activities, such as prostitution, or has entered the country illegally.

Furthermore, disclosure of a diagnosis of AIDS, or perhaps even involvement in AIDS research, carries a stigma that can adversely affect a person's interests socially, politically, and economically. Potential subjects, either individually or through organizations representing their interests, have sought recognition of these risks and assurances that appropriate measures will be taken to protect their privacy.

For these reasons, we believe that special guidelines are necessary for AIDS research. The guidelines which we have developed are concerned with the protection of the privacy of persons with AIDS and their families and friends, with the confidentiality of information collected about them, and with the security of data systems in which this information is stored. However, research into other diseases also carries risks for subject populations. We hope that guidelines on AIDS will stimulate an examination of the general problem of protecting the confidentiality of research records.

AIDS research is conducted in a context of standards already set by law and regulation, professional practice, and agency policy. In some cases, these standards provide only minimal protection. The guidelines, which were developed by a multidisciplinary group representing diverse professional, public and social interests, are intended to strengthen existing protections and procedures. They are directed at several audiences: researchers, public health officials, legislators, members of institutional review boards, subjects, and

organizations that represent subjects' interests.

Thirteen topics and broad issues are addressed in the guidelines. They are the following: (1) What activities are covered by the guidelines? (2) For whom is confidentiality protection necessary? (3) What kinds of information are researchers likely to need and what are the likely sources? (4) When are identifiers needed in research and what precautions should be taken? (5) Who should have access to personally identifiable information obtained in research or surveillance? (6) Who should NOT have access to personally identifiable information obtained in research or surveillance? (7) What are the current legal protections? (8) What steps should be taken to enhance the legal protections available to research subjects? (9) What standards should institutional review boards follow? (10) When is consent required? (11) The need for consistency. (12) The need for a continuing advisory board. (13) Communication and education.

A copy of the guidelines proposed and the recommendations of the committee can be obtained by writing to: AIDS Guidelines, IRB Hastings Center Report 6/6, 360 Broadway, Hastings-on-Hudson, New York, 10706.

R. Bayer, C. Levine, and T. H. Murray.  
The Hastings Center, Hastings-on-Hudson,  
New York 10706.

#### PSYCHOSOCIAL AND PSYCHIATRIC ASPECT OF AIDS

The AIDS epidemic has produced profound psychosocial and medical impacts since it was first recognized in the United States in 1979. The illnesses of AIDS patients and also of the much

larger number of individuals diagnosed as having AIDS-related complex (ARC) have affected not only the patients but also a significant number of family members, friends, spouses, lovers, healthy members of high risk groups, health care professionals who care for AIDS patients, and members of the general population. AIDS has had a much greater psychosocial impact than would be expected based solely on the numbers of diagnosed patients or the numbers of people who have died from AIDS.

Many factors contribute to the great psychosocial impact of AIDS: its newness, its high two-year mortality rate, its transmissibility, its long incubation period, its resistance to effective treatment, its early association with stigmatized population groups, and its predominance in young adults and in children. This paper addresses psychosocial and psychiatric issues for diagnosed AIDS patients and also briefly discusses psychosocial effects on other groups of "AIDS-affected" individuals.

Any disease can affect not only an individual's biological functioning but potentially also his/her personal activities (routine self care, mobility, and physical activities), psychological well-being, general health perceptions, social functioning, and role functioning (work, social interactions, leisure activities) (Ware JE: Cancer, 1984, Suppl 53:2316-2323.) AIDS is an extremely "psychosocially malignant" illness. The biomedical effects of AIDS and the social and psychological effects of this transmissible, life-threatening illness often seriously damage all of the levels of individual functioning just enumerated.

Concepts which have previously proven useful in understanding the psychosocial impacts of numerous serious medical ill-



nesses also are applicable to AIDS. These include the life cycle phase of the individual (the psychosocial impact on the patient and members of his/her social network varies dramatically when 5, 35, or 65 year olds are compared), the patient's previous patterns of coping with stressful events including illnesses, the sources, types, and adequacy of social supports currently being given by others, the degree and sources of ongoing current psychological distress, the extent to which the illness has resulted in functional losses and has brought on a grief reaction, the manner in which the illness is conceptualized by the patient (for example, as punishment), the effects of the illness on the patient's positive personal identity (for example, enforced dependence on others may result in feelings of worthlessness), and the extent to which the illness threatens a hoped-for future.

The feeling of helpless vulnerability--that one can do nothing to affect the course of one's illness--is a common and powerful source of distress for AIDS patients. AIDS is currently a highly stigmatizing illness. The social support received from others can be undermined when others fear contracting AIDS through interactions with the AIDS patient.

Clinically, there are phases of the psychosocial response to AIDS (Nicholls SE: Psychosomatics, 1983, 24:1083-1089; Forstein M: Semin Oncol., 1984, 11:77-82). These are like the four phases commonly encountered in cancer. Weisman has defined these phases as existential plight (the acute, intense, often chaotic early psychological response to the diagnosis of a life-threatening illness), accommodation and mitigation (the process of resolving the acute psychological crisis and achieving a new, rela-

tively stable, psychological equilibrium), recurrence and relapse (the response to the realization that cure is no longer likely and that this disease is likely to cause one's death), and deterioration and decline (the preparation for imminent death when the terminal phase of illness is entered). The phases of existential plight and recurrence and relapse are usually characterized by the most intense psychological distress and are the phases during which there is the greatest risk that psychiatric symptoms will develop (Weisman AD: Gen Hosp Psychiatry, 1979, 1:187-195).

Hospitalization often produces added stresses. In hospitals, individuals experience lengthy periods of social isolation. In addition, they may be deprived of direct physical contact with others when infection control procedures are being enforced.

AIDS patients quite frequently develop psychiatric syndromes. Some patients completely deny illness and refuse appropriate treatment. Anxiety states, panic attacks, severe reactive depressions, brief stress-induced reactive psychoses lasting a few hours or days, marked preoccupation with physical symptoms (hypochondriasis), and chronic insomnia have all been observed. Some patients engage in highly dangerous risk-taking behaviors. Suicidal crises and successful suicides appear to be more frequent in patients with AIDS than in cancer patients.

Central nervous system (CNS) diseases, which are usually associated with organic mental disorders, are very common in AIDS patients. The neuropsychiatric syndromes common in AIDS include delirium, organic personality disorders and/or affective disorders, and dementia. Localizing neurologic signs may be present in AIDS patients with CNS dis-

case. In one report, 50/160 AIDS patients (31%) had evidence of neurologic disease prior to death. The CNS problems in AIDS patients include syndromes secondary to infections (subacute encephalitis often probably due to cytomegalovirus, cryptococcal and other meningitides, toxoplasmosis and other infectious cerebral mass lesions), neoplasms (CNS Kaposi's sarcoma, immunoblastic lymphoma), and cerebrovascular disease (Snider WD, Simpson DM, Nielsen S, et al: Ann Neurol., 1983, 14:403-418). Other organ system disease states common in AIDS may also contribute to acute organic mental disorders, such as delirium. These include hypoxemia secondary to Pneumocystis carinii pneumonia, metabolic imbalance secondary to diarrhea, sepsis, and post-ictal states.

Because of the high incidence of CNS disease in AIDS patients and the frequency with which neurologic diseases present as psychiatric syndromes in general and because some CNS disease processes can be successfully treated, physicians should always consider that a psychiatric syndrome in an AIDS patient may have an underlying neurologic cause. AIDS has been reported in one study to present with neurologic symptoms (Levy RM, Pons VG, Rosenblum ML: J Neurosurg., 1984, 61:9-16).

Members of the high risk groups (particularly homosexual men) and people with ARC have shown a significant incidence of anxiety and depression related to concern about AIDS. This is to be expected in individuals who feel they are at increased risk for developing a life-threatening illness. AIDS patients in different high risk groups may experience group-related specific psychosocial problems.

In homosexual men, the diagnosis of AIDS may precipitate a unique psycholog-

ical crisis, if family members and friends did not previously know of, and accept, the patient's sexual orientation. Many homosexual AIDS patients who have been estranged from their families may experience uncertainty about whether, and how, to reestablish ties with family members. In addition, internalized negative feelings about homosexuality often are aroused or reawakened in newly-diagnosed male homosexual AIDS patients. Anxiety and guilt about the possibility of transmitting AIDS through sexual activity are also frequent sources of stress.

Some hemophilic patients have apparently changed their patterns of factor VIII use in response to the AIDS epidemic. Tremendous stress becomes associated with factor VIII usage which is at once acutely life-saving and at the same time potentially life-threatening.

Little has been published concerning the psychiatric effects of AIDS in children, although many apparently come from fragmented families with limited economic and psychosocial resources. The adverse effects of fatal illnesses in children on the physical health, psychological status, and social functioning of other family members have been documented in families of children with cancer (Kaplan DM, Smith A, Grobstein R, et al: Social Work, 1978, 18:60-69).

Some Haitians have been ostracized by their families after receiving a diagnosis of AIDS (Forstein M: Semin Oncol., 1984, 11:77-82). Little else has been written about the psychiatric effects of AIDS in Haitians or in intravenous drug abusers.

Family members, spouses, lovers, and close friends of AIDS patients face many stresses induced by the patient's progressive physical decline and eventual death. Physical and emotional exhaustion

and anticipatory grief are frequent. These may contribute to conflict and even to estrangement at a time when the patient most needs both the emotional support and practical assistance best provided by these intimate relationships. Health care professionals caring for AIDS patients may "burn out" as a result of the stresses they experience from the often intense needs of the patients with respect to both physical care and emotional support and from the recurring grief reactions they experience when AIDS patients (who are often previously healthy, young adults) die.

#### Psychosocial Interventions with "AIDS-Affected" Individuals

The components of an ideal program to meet the psychosocial and psychiatric needs of the "AIDS-affected" population are listed in the table. In general, brief individual psychotherapy, support groups (especially open-ended "drop in" groups), education, and psychopharmacologic therapy appear to be effective when used appropriately with AIDS patients. Health care professionals need to become aware of the unique psychosocial needs of AIDS patients from specific high-risk groups, of the psychosocial consequences of the lengthy periods of disability common in AIDS (particularly in patients with opportunistic infections), and of the psychiatric presentations of neurologic diseases seen in AIDS.

#### Psychological Stresses for Seropositive Blood Donors

Screening of potential blood donors for HTLV-III antibody has begun. This technical achievement has created ethical and psychological questions with regard to policies for informing seropositive donors of their status.

Longitudinal studies of sexually active seropositive homosexual males in New York City indicate that they are at risk for developing AIDS or ARC (Gordert JJ, Sarugadharan MG, Biggar RJ; et al: Lancet, 1984, 2:711-716). It is conceivable that currently healthy, but seropositive, individuals could, by altering their sexual behavior or engaging in other health-enhancing behaviors, preserve their immunocompetence and prevent the development of AIDS or ARC. They might also want to take measures to protect their acquaintances from exposure to HTLV-III.

Many studies have found that people are able to deny, minimize, or in some other way protect themselves psychologically from threatening information. People differ in whether they want to be informed of unpleasant information: most competently know in advance that they do or do not wish to receive potentially distressing information about their health status. Until the medical, ethical, legal, and confidentiality issues concerning seropositive individuals are identified and delineated, it might, therefore, be appropriate to ask those tested for HTLV-III seropositivity whether or not they wish to know the results. All those who have chosen to know their serologic status could then be informed by an identical procedure, regardless of the test results. The results could be given personally, by an individual who is medically knowledgeable and who is psychologically sensitive and empathic. Along with the test findings, medical information about the meaning of seropositivity could be given to seropositive individuals in a realistic, but hopeful manner. The accessible individual and group support resources available for seropositive individuals could be described at that times as



AN IDEAL COMPREHENSIVE PROGRAM TO MEET THE PSYCHOSOCIAL  
AND PSYCHIATRIC NEEDS OF "AIDS-AFFECTED" INDIVIDUALS

I. Care of individual AIDS or ARC patients

- A. Longitudinal outpatient and in-patient care provided or coordinated by a primary physician throughout the illness.
- B. Accurate and complete medical information presented as fully as desired by the patient. Presentation should be made empathically and with hope by the physician.
- C. Patient participation in the decision-making process for treatment at all times as fully as s/he desires.
- D. Provision of needed additional medical services by a multidisciplinary team, including mental health professionals knowledgeable about the psychiatric problems and needs of AIDS patients. Access to brief individual psychotherapeutic, support group, and psychopharmacologic interventions.
- E. Provision of in-home care as needed.
- F. Referral to community resources (such as AIDS Project/Los Angeles, Gay Men's Health Crisis, and others).
- G. Routine (usually informal) screening of ARC patients or members of high risk groups for evidence of significant psychological distress. Referral for psychiatric or psychological services as indicated.

II. Care of family members, spouses, lovers, and close friends of AIDS or ARC patients

Informal screening for psychological support or for information. Provision of these services on an individual and/or group basis. Provision of post-bereavement support.

III. Support of health care professionals caring for AIDS and ARC patients

Regular and/or as-needed group meetings to provide information and to allow for expression of feelings engendered by patients' illnesses and deaths to minimize staff stress and to prevent chronic professional stress syndrome (burn out).

well, so that help will be provided for coping with any level of distress engendered by the test findings. Although such a program would be costly, requiring the services of highly skilled personnel, it might be effective not only in preventing and/or relieving psychological distress, but in lessening the human toll of the AIDS epidemic.

D.L. Wolcott, Department of Psychiatry and Biobehavioral Sciences, UCLA, Los Angeles, California 90024.

#### BLOOD TRANSFUSION SAFETY STUDY

The National Heart, Lung and Blood Institute (NHLBI) of the National Institutes of Health is sponsoring a contract held by the University of Southern California to establish a serum repository for collecting, labelling, and storing serum samples from 200,000 randomly selected volunteer blood donors. The blood will be tested for antibodies to HTLV-III. The consent form printed below was developed by the contractor in consultation with the NHLBI and is being used in four centers: Los Angeles Orange County Red Cross, Irwin Memorial Blood Bank of San Francisco, the New York Blood Center, and the South Florida Blood Service of Miami. Seropositive donors will be entered into a prospective study as will recipients of blood products from these donors.

##### Consent Form

I understand that, as part of a national research study of 200,000 volunteer blood donors, I am being asked to consent to having a small sample of my blood saved and possibly used for research. Some of the samples will be selected for future testing for infectious agents which may be transmitted by

blood transfusion. This includes new tests for antibodies to indicate whether a virus has been or is present which is possibly related to AIDS or other diseases.

The significance of the presence of the antibodies and the reliability of the method used to detect them are not known at this time. If my blood is tested and if these antibodies are detected, I will be informed of the results and offered further testing to clarify their meaning. Even if antibodies are not detected, I may be contacted and asked to serve in a comparison group. I consent to be contacted for further tests.

I understand that I am free to decline to allow a sample of my blood to be saved for testing. If I do participate and am contacted in the future, I will be free to decline further testing at that time.

I further understand that results of the test will be treated with confidentiality. Only authorized staff of this institution and members of the research team are expected to have access to the information relative to my test; however, officials of the Food and Drug Administration or others authorized by law may require access to this information.

My entrance to this study is completely voluntary. If I decide not to participate I will not be denied any benefit to which I am otherwise entitled.

Any questions I may have about this study or my rights as a subject may be addressed to \_\_\_\_\_ who is fully acquainted with all of the details of this study.

F. A. Pitlick, National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, Maryland 20205.

#### GREEK WORKING PARTY ON AIDS

A Working Party on AIDS was set up by the Ministry of Health and Welfare of Greece in October, 1983. Its mandate included (a) advising the Ministry on the current status of understanding about AIDS and proposing measures to combat the disease, (b) organizing a nationwide epidemiology surveillance system, (c) organizing diagnostic facilities and periodically reviewing suspected cases, and (d) providing adequate information to hospitals and other health personnel and educating the public. Members of the Working Party are G. Papaevangelou, J. Papapanajotou, J. Iordanoglou, J. Stratigos, T. Mandalaki, J. Economidou, A. Kaloterakis, and Th. Stephanou.

The Working Party has met several times and, by ministerial decision, has declared AIDS a reportable infectious disease. It has established an epidemiological registry for reporting suspected cases and has issued specific instructions for recordkeeping. Guidelines have been issued for blood donors and precautions for health personnel caring for patients have been established.

Five cases of AIDS have been reported to date (Table). Lymphadenopathy associated syndrome (LAS) was diagnosed in six patients. All six had hemophilia. All had been heavily treated with factor VIII concentrates of commercial origin. Antibodies to LAV were detected in samples studied from almost all of these patients. In contrast, antibodies to LAV were not found in samples from patients with classical Kaposi's sarcoma. Some details of these studies have already been published (Papaevangelou G, Economidou J, Kallinikos J, et al: *Lancet*, 1984, 2:642). Further studies of individuals in high risk groups are in progress.

In July, 1984, the Ministry of Research and Technology issued a call for research proposals on AIDS.

G. Papaevangelou. National Center for Viral Hepatitis, Athens School of Hygiene, Athens, Greece 11521.

#### CHARACTERISTICS OF AIDS PATIENTS IN GREECE

Patient No.	Origin	Sex	Age	Sexual Behavior	No. of T4 Cells/ $\mu$ l	Ratio T4:T8	Antibodies to LAV
1	Zambia	Male	26	Homosexual	0	0.00	+
2	Greece	Male	36	Bisexual	7	0.18	+
3	USA	Male	31	Bisexual	54	0.09	+
4	Burundi	Male	33	Heterosexual	158	2.0	+
5	Greece	Male	35	Homosexual	37	0.07	N.D.



NEW BOOK: AIDS, A BASIC GUIDE  
FOR CLINICIANS

The recently published volume, "AIDS, A Basic Guide for Clinicians" (P. Ebbesen, R.J. Biggar, and M. Melbye (Eds), Munksgaard, Copenhagen, 1984), consists of a series of short essays on various aspects of AIDS. The essays were written by individuals and groups with extensive experience dealing with different facets of this disease. As stated in the preface, the book is meant to provide a clinical and laboratory profile of AIDS which could serve as a ready reference to general physicians who find themselves responsible for the care of the occasional AIDS patient. Perhaps because of the very conciseness of the individual contributions, this purpose is generally well-served.

A basic philosophical question that must be asked about any book on a newly discovered disease (including AIDS) is how complete is the information that is presented and how long will that information remain current and useful. What can be said in the case of AIDS is that the biomedical community has moved with extraordinary rapidity to limn out the major features of the disease. As a result, barely 4 years after the description of the first case, we already have on hand a body of information which can reasonably form the basis of an organized and coherent compendium. Having said this, it is also fair to point out that any book on AIDS written at this point will become increasingly deficient as certain areas of information about AIDS expand. In particular, this book was written just a short time after the HTLV-III retrovirus was discovered. Consequently, the impact of knowing the identity of the agent which causes AIDS on our understanding of the epidemiology

of the disease, on prevention of disease, and on certain clinical manifestations is not fully known and could not be reflected in the book.

It follows from all this that the individual chapters reflect the strengths and weaknesses of the knowledge base in each field. I felt that the clinically oriented chapters, which form the core of the book, were commendable because they contain all the essential elements necessary for the general physician, yet they were free of excess information likely to be of interest mainly to experts. Perhaps one exception here is the chapter on opportunistic infections which is excellent as a current guide to treatment but gives little information about the unique clinical aspects of such infections in AIDS. A very welcome feature of the book is the extensive collection of color photographs of various disease manifestations, histopathological findings, and other relevant bacteriological and diagnostic features. These photographs are well reproduced and cannot be found in other publications on AIDS.

The volume contains material that does not, strictly speaking, have a direct role in the care of AIDS patients but is, nevertheless, extremely valuable as background information on AIDS. For instance, the book provides up-to-date information about the epidemiology of AIDS, the pathology of AIDS, and some early but essential information about the virology of AIDS. In addition, there is a chapter on the immunology of AIDS which is quite clear and lays the groundwork for understanding the various immunologic dysfunctions occurring in AIDS. Again, this basic information about AIDS is subject to change, and one can expect significant new information to become available in the years ahead.

Finally, the book contains a well-indexed bibliography.

In all, this is a readable volume for any clinician who has need of an organized summary of the AIDS syndrome as we know it so far. It is not the definitive word on AIDS and as such is not likely to become a standard reference text. Nevertheless, it will find a useful place on many a shelf.

W. Strober. National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland 20205.

#### UPCOMING AIDS MEETING

International Conference on AIDS  
Atlanta, Georgia  
April 14-17, 1985

#### Information

AIDS Conference Office  
Centers for Disease Control  
Building 1, Room 2047  
Atlanta, Georgia 30333

The purpose of the Conference is to exchange scientific information on the epidemiology, virology, immunology, hematology, oncology, clinical manifestations, and treatment of AIDS, on screening and diagnostic tests, on psychosocial and behavioral issues, and on strategies for the prevention and control of AIDS. Internationally recognized scientists will provide a comprehensive overview of the subject.

THIS MEMORANDUM CONTAINS PRELIMINARY DATA WHICH MAY NOT BE CITED  
EXCEPT AS PRESCRIBED IN THE GROUND RULES FOUND ON PAGE 1

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U.S. AIDS CASES REPORTED TO THE CENTERS FOR DISEASE CONTROL AS OF DECEMBER 17, 1984

DISEASE	CASES	PERCENT OF TOTAL	DEATHS	PERCENT DEAD
KS without PCP	1670	23	499	30
PCP without KS	4056	55	2040	50
Both KS and PCP	452	6	294	65
OI without KS or PCP	1230	17	665	54
TOTAL	7408	100	3498	47

KS = Kaposi's sarcoma      PCP = *Pneumocystis carinii* pneumonia  
OI = Opportunistic infection

PATIENT GROUPS*	MALES		FEMALES		TOTAL	
	CASES	% OF TOTAL	CASES	% OF TOTAL	CASES	%
<u>Adult/Adolescent</u>						
Homosexual or bisexual men	5329	78	—	—	5329	73
IV drug user	998	15	262	55	1260	17
Haitian	216	3	39	8	255	3
Hemophiliac	47	1	0	0	47	1
Heterosexual contact†	6	0	54	11	60	1
Transfusions with blood products	48	1	40	8	88	1
None of the above	201	3	78	16	279	4
TOTAL	6845	100	473	100	7318	100
<u>Pediatric‡</u>						
Parent with AIDS or at increased risk of AIDS	34	64	30	81	64	71
Hemophiliac	4	8	0	0	4	4
Transfusion with blood products	10	19	2	5	12	13
None of the above	5	9	5	14	10	11
TOTAL	53	100	37	100	90	100

\* The risk groups listed are hierarchically ordered; cases with multiple risk factors are tabulated only in the risk group listed first.

† With a person with AIDS or at risk for AIDS.

‡ Includes patients under 13 years of age at time of diagnosis.